

### **REMARKS**

Claims 1–26 and 34-52 are currently pending in this application. Claims 1-26 and 34-52 presently stand rejected under 35 U.S.C. §103(a). Applicants respectfully request reconsideration of the claims of this application in light of the remarks presented herein.

Claims 27-33 had been cancelled in an earlier Amendment without prejudice in response to the restriction requirement entered by the Examiner.

### **REJECTION UNDER 35 U.S.C. §103(A)**

Claims 1 – 26 and 34 - 52 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Reddy et al. (U.S. Pat. No. 6,406,724) in view of Taylor (U.S. Pat. No. 4,584,199), Nauth et al. (U.S. Pat. No. 6,110,509), and Toravill et al. (GB 713,251). Applicants hereby traverse this rejection because none of the cited references, alone or in combination, teach or suggest the present invention as claimed.

According to the Examiner, the primary reference, Reddy et al., discloses a flavoring system and method of preparing a sulfury-cheddar flavor, a creamy-buttery flavor, and a cheesy flavor as is claimed by the present invention. However, the Examiner acknowledges, both in the last Office Action and in the interview, that the claims differ as to the addition of the bacterocin. Accordingly, the Examiner cites three additional prior art references to overcome the deficiency of Reddy et al.

The Examiner cites Taylor because it discloses the addition of nisin to cheese products. Nauth et al. discloses the use of nisin-producing cultures to stabilize cream cheese. Finally, the Examiner further applies Toravill et al. for its disclosure of the use

of a starter containing a nisin-producing culture in the manufacture and preservation of cheese. This rejection is essentially the same rejection as in the previous non-final rejection and relies upon the same art.

As a result of this combination of references, the Examiner again concluded that it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to use nisin or a nisin producing culture because "the use of nisin in the production of cheese is conventional in the art." (Office Action at p. 2). The Examiner further stated that applicants are "using known components to obtain expected results." (Office Action at p. 2). With regard to Applicants earlier argument that the present invention provides unexpected results, the Examiner noted that:

"The prior art clearly teaches the addition of nisin in cheese production. It is further noted that Applicant's use of bacterocin is "optional" in both specification and the claims. Applicants does not claim ripening times. In the absence of a showing of unexpected results, Applicant is using known components to obtain no more than expected results." (Office Action at p. 3).

Applicants again respectfully disagree. The present invention claims a cheese flavoring system that can be used to provide cheeses having desired flavor profiles with accelerated flavor development and are stabilized against growth of spoilage or pathogenic microorganisms. The optimum pH for the enzymatic production of flavor compounds is pH 6.0 or greater. However, conducting fermentation at pH's above 5.8 greatly increases the risk of microbial contamination. The present invention is novel in that it utilizes cell-permeabilizing agents, such as bacterocins, **to aid in the generation of flavor and aroma compounds as well as to prevent microbial outgrowth**. The bacterocins increase the permeability of the cell membranes of the bacterial cells, thus allowing substrates to diffuse across the cell membrane to be degraded by enzymes within the cells to generate flavor compounds. Therefore, the use of bacterocins in the present invention – which is optional only for the individual components but is not

optional for the system as a whole – allows for the production of flavor components using bacterial cells that are grown at a pH that provides the optimum conditions for enzyme activity, thus optimizes flavor compound production, and reduces production time.

First, as discussed at the interview, although a bacterocin in each of the three components (i.e., the sulfury-cheddar flavor component, the cheesy flavor component, and the creamy-buttery component) is optional, **at least one of the three components must contain a bacterocin**. Both the specification and the independent claims require that “at least one of the first, second, and third bacterocin sources is included.” Thus, at least one of the components must contain a bacterocin; or course, two or all three of the components may contain bacterocins. So a bacterocin is only optional for each independent component but is not optional in the flavoring system.

Moreover, as discussed in the previous response and in the interview, the present invention represents a **significant and unexpected** improvement over the prior art of Reddy et al. The concentrates of the present invention have improved quality and faster production times as compared to that disclosed in Reddy et al. For example, the sulfury-cheddar components of Reddy et al. require at least about 8 days (about 192 hours) to ripen compared to less than about 5 days (more particularly in less than 3 days) in the present invention. (Specification, p. 12, lines 20-30). This represents a significant and unexpected shorting of the required production time to obtain the desired flavor profile. Cheesy components of cheese flavor concentrates of the present invention ripen in as little as 26 hours compared to at least about 48 hours with Reddy et al. Again, this represent a significant and unexpected shortening of the required production time to obtained the desired flavor profile. The creamy-buttery components of the present invention have superior microbial stability and spoilage organism control over those described in Reddy et al.

Moreover, neither Taylor, Nauth et al., nor Toravill teach the use of bacteriocins **to aid in development of specific flavor components** in addition to improving microbial stability. Taylor simply discloses the use of nisin to inhibit growth and toxin formation of spore-forming spoilage organisms in process cheese spreads. Nauth et al. teaches the use of a nisin-producing culture to stabilize a cream cheese composition against the growth of microbial contaminants. Toravill et al. simply discloses the use of a starter containing a nisin-producing culture in the manufacture and preservation of cheese. These references merely teach that it was known to use nisin to stabilize cheese and reduce growth of microorganisms therein. These references teach absolutely nothing regarding the development of **specific flavor components** or the **acceleration**. Further, there is no teaching in any of the cited references that a bacterocin could be used to produce enhanced cheese flavors with reduced production times that target **specific** cheese flavor components.

Respectfully, the Examiner's assertion that Applicants are using known components to obtain expected results is incorrect. Applicants' are not suggesting that the use of a bacterocin (e.g., nisin) in cheese production is new. (See Specification, p. 8, lines 8-31; p. 9, lines 1-26). Rather, the result obtained (i.e., **accelerated development of specific flavor components**) by the present invention is unexpected and new and represents a significant advance in the art. None of the cited art teaches or suggests that inclusion of a bacterocin in at least one of the three components during the production of the respective components would result in such a significant reduction in the time required for flavor development.

One of ordinary skill in the art seeking to improve the flavor systems of Reedy et al. would **not** have looked to the art related to preserving or stabilizing cheese (i.e., the nisin art). Nor would "common sense", as used in the United States Supreme Court's

recent decision in the *KSR International Co. v. Teleflex, Inc.* case, have lead one of ordinary skill in the art to such a combination.

**CONCLUSION**

In view of the above, Applicants respectfully submit that pending claims 1-26 and 34-52 are in condition for allowance. Therefore, Applicants respectfully request that this case be passed to issuance.

The Commissioner is hereby authorized to charge any additional fees which may be required with respect to this communication or credit any overpayment to Deposit Account No. 06-1135.

Respectfully submitted,

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